



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/751,184	12/30/2003	Sang Hun Oh	PIA31069/ANS	3371

36872 7590 05/02/2005

THE LAW OFFICES OF ANDREW D. FORTNEY, PH.D., P.C.
7257 N. MAPLE AVENUE
BLDG. D, 3107
FRESNO, CA 93720

EXAMINER

GRAVINI, STEPHEN MICHAEL

ART UNIT	PAPER NUMBER
----------	--------------

3749

DATE MAILED: 05/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/751,184

Applicant(s)

OH, SANG HUN

Examiner

Stephen Gravini

Art Unit

3749

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 November 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Objections

Claim 11 is objected to because it depends upon itself. Appropriate correction is required.

Priority

Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Korea on December 30, 2002. It is noted, however, that applicant has not filed a certified copy of the Korean application as required by 35 U.S.C. 119(b).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(d) the invention was first patented or caused to be patented, or was the subject of an inventor's certificate, by the applicant or his legal representatives or assigns in a foreign country prior to the date of the application for patent in this country on an application for patent or inventor's certificate filed more than twelve months before the filing of the application in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-5, 7-12, and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Verhaverbeke et al. (US 2003/045098). Verhaverbeke is considered to disclose a method comprising:

dry cleaning an ARC layer with an oxide based gas (please see paragraphs 52, 53, & 94);

etching at least part of the metal layer with a gas mixture comprising Cl_2 and CHF_3 (please see paragraph 98). Verhaverbeke is also considered to disclose the claimed Cl_2 ranges from about 100 sccm to about 200 sccm, CHF_3 ranges from about 5 sccm to about 30 sccm, etching pressure from about 8 mTorr to about 50 mTorr, and power from about 500W to about 1200W at paragraph 98, 5-30 second method at paragraph 100, oxygen oxide based gas at paragraph 57, sequential dry cleaning and etching in a single chamber at paragraphs 4 & 5, a metal layer and ARC layer are on a wafer having a center area and an edge and the etching step decreases a micro loading effect in the edge area at paragraphs 127, & 131, etching rate center and edge being substantially the same at paragraph 131, chamber etching step further eliminating polymer chamber deposits at paragraph 129, and ARC silicon oxide layer at paragraph 25.

Claims 1-16 are rejected under 35 U.S.C. 102(d) as being barred by applicant's priority document Korean publication 2002086042. That publication shows from DERWENT INFORMATION LTD, reference N cited in this action, that the present application was caused to be patented in Korea on May 11, 2001, which is more than one year from the filing of the present application.

Claim Rejections - 35 USC § 103

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Verhaverbeke . Verhaverbeke is considered to disclose the claimed invention, as

discussed above in the anticipatory rejection, except for the claimed bias power ranges. It would have been obvious to one skilled in the art to combine the teachings of Verhaverbeke with various power ranges, since those power ranges are not considered to patentably distinguish the invention over the power ranges found in Verhaverbeke.

Claims 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Verhaverbeke in view of Zhao et al. (US 6,189,482). Verhaverbeke is considered to disclose the claimed invention, as discussed above in the anticipatory rejection, except for the claimed aluminum and silicon byproducts, aluminum metal layer, and titanium nitride layer. Zhao is considered to disclose aluminum and silicon byproducts, aluminum metal layer, and titanium nitride layer at column 1 line 34 through column 2 line 54. It would have been obvious to one skilled in the art to combine the teachings of Verhaverbeke with the considered disclosed aluminum and silicon byproducts, aluminum metal layer, and titanium nitride layer found in Zhao for the purpose of depositing films on substrate materials.

Double Patenting

Claims 1-16 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 9-15 of copending Application No. 10/749,635. Although the conflicting claims are not identical, they are not patentably distinct from each other because the copending application step of plasma ignition can be construed to include the presently claimed oxide based ARC layering, since both perform the same function, using substantially the same method, with substantially the same result.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Response to Arguments

Applicant's arguments filed November 18, 2004 have been fully considered but they are not persuasive.

Since the claims have been substantially amended, the prior rejection is withdrawn and the current rejection further defines the invention, however the double patenting rejection is considered proper because it is common for the Office to allow an application that contains both method and apparatus claims. For example, reference C, cited in this application is a patented invention claiming both an apparatus and method. Applicant's arguments with respect to the distinction of the presently claimed method from the copending claimed apparatus is not considered to overcome the rejection and is therefore maintained.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen Gravini whose telephone number is 571 272 4875. The examiner can normally be reached on normal weekday business hours (east coast time).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ira S. Lazarus can be reached on 571 272 4877. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SMG
April 14, 2005

